

LABORATORY MOISTURE - DENSITY RELATIONSHIP

Metric

Rev. 4/98

DOTD TR 418 - Methods C & D
(Metric)

PROJECT NO: _____ DATE: _____ LAB NO: _____

*TYPE ADDITIVE: _____ TYPE SOIL: _____ SAMPLE NO: _____

TESTED BY: _____ CHECKED BY: _____

	SAND	SHELL	TOTAL
PERCENT BY VOLUME	$V_1 =$	$V_2 =$	$V_1 + V_2 = 100$
UNIT MASS, kg/m ³	$S_1 =$	$S_2 =$	
THEORET. UNIT MASS OF MIX, kg/m ³	$S_1 V_1 =$	$S_2 V_2 =$	$S_1 V_1 + S_2 V_2 =$
PERCENT BY MASS SAND-SHELL	$W_1 =$	$W_2 =$	$W_1 + W_2 =$
MIX MASS OF SAND-SHELL, g	$(W_1 \times 7000) + 100 =$	$(W_2 \times 7000) + 100 =$	$D = 7000$

*MAX. DRY DENSITY OF MATERIAL (From TR 418, Method C), kg/m ³	A		
*REQUIRED % BY VOL. OF ADDITIVE (_____ TR 432-B, _____ specified)	B		
*% MASS OF ADDITIVE (_____ chart, _____ formula)	C		
DRY MASS OF MATERIAL (Rep. portion) (_____ Shell, _____ Sand-Shell), g	D		7000
*MASS OF ADDITIVE TO BE ADDED, g	E	$(C \times D) + 100$	
*TOTAL DRY MASS OF MATERIAL AND ADDITIVE, g	F	$D + E$	

* FOR USE WITH DOTD TR 418, METHOD D ONLY.

CURVE POINT NO.	***		1	2	3	4	5	6
PAN NO. (if applicable)	***							
WATER ADDED, mL	G	See Calculations						
MASS MOLD, BASE (if appl.) & WET MATL, g	H							
MASS MOLD & BASE (if applicable), g	I							
MASS WET COMPACTED MATERIAL, g	J	H - I						
VOLUME OF MOLD (or specimen), m ³	K							
MASS OF PAN & DRY MATERIAL, g	L							
MASS OF PAN, g	M							
MASS OF DRY MATERIAL, g	DW	L - M						
MASS OF WATER, g	WW	J - DW						
WET DENSITY, kg/m ³	WWD	$\frac{J}{(1000) K}$						
MOISTURE CONTENT, %	MC	$(WW/DW) \times 100$						
DRY DENSITY, kg/m ³	DWD	$\frac{WWD}{100 + MC} \times 100$						

REMARKS: _____

